Long term impact and cost benefit of a falls prevention program among community-based older people

Acknowledgements

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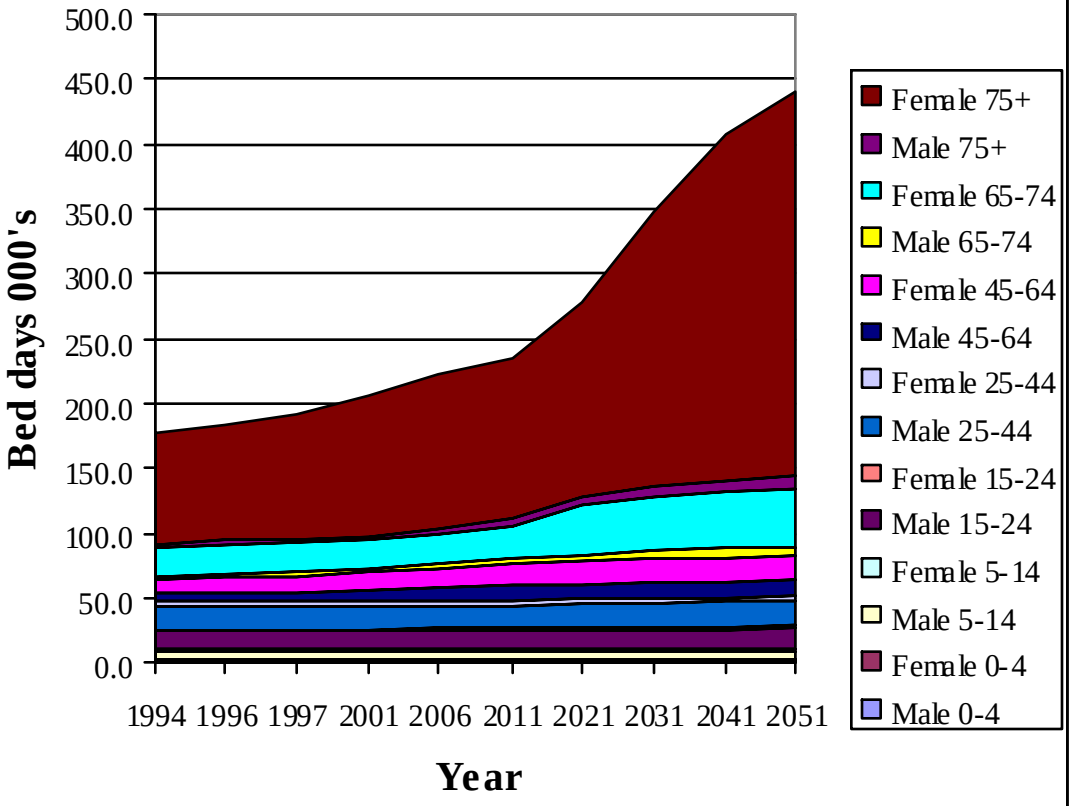
3. *Queensland University of Technology*
4. *Northern Rivers Area Health Service*
5. *Southern Cross University*

Importance of Falls in Older People

- Falls are the major cause of unintentional injury and death among people 65 years and older with approximately 30% of the older adult population experiencing a fall each year
- Immediate and long term consequences
- Ageing population

Projected trends in public hospital bed days required to treat falls by age group and sex (Based on ABS series I Population projections)



Evidence for Falls Prevention

- Reviewing medication to minimise side-effects
- Increasing physical activity and balance,
- Home modifications such as safety rails,
- Appropriate footwear
- Ensuring spectacles are of appropriate strength
- Interventions that minimise the impact of a fall such as hip protectors

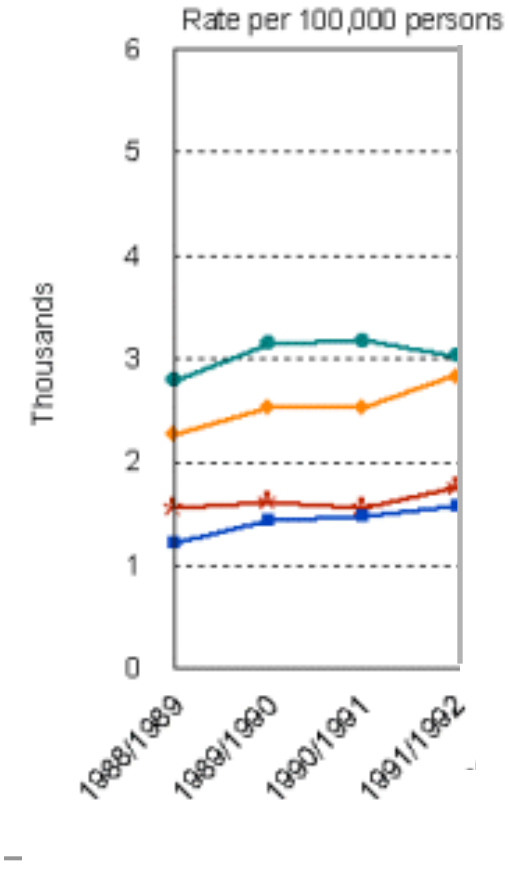
Stay on Your Feet – Principles

- Community based
- Target group involvement
- Multiple strategies
  - Awareness raising
    - Older people
    - Clinicians
  - Community education
  - Policy development
  - Home hazard reduction
  - Media
  - Clinicians

SOYF Evaluation Methodology

- Prospective cohort study, 1991-95
  - Subjects >60 years
  - 2000 North Coast residents
  - 1600 Sunshine Coast residents
- Cross sectional surveys 1994, 1995, 1996
- Hospitalization trends 1989-2000
- CATI 2002
- Economic analysis

Falls Related Hospital Admissions age > 65 years for North Coast Area Health Service 1988-2005



Source: NSW Health Department Inpatient Statistics Collection and ABS population estimates

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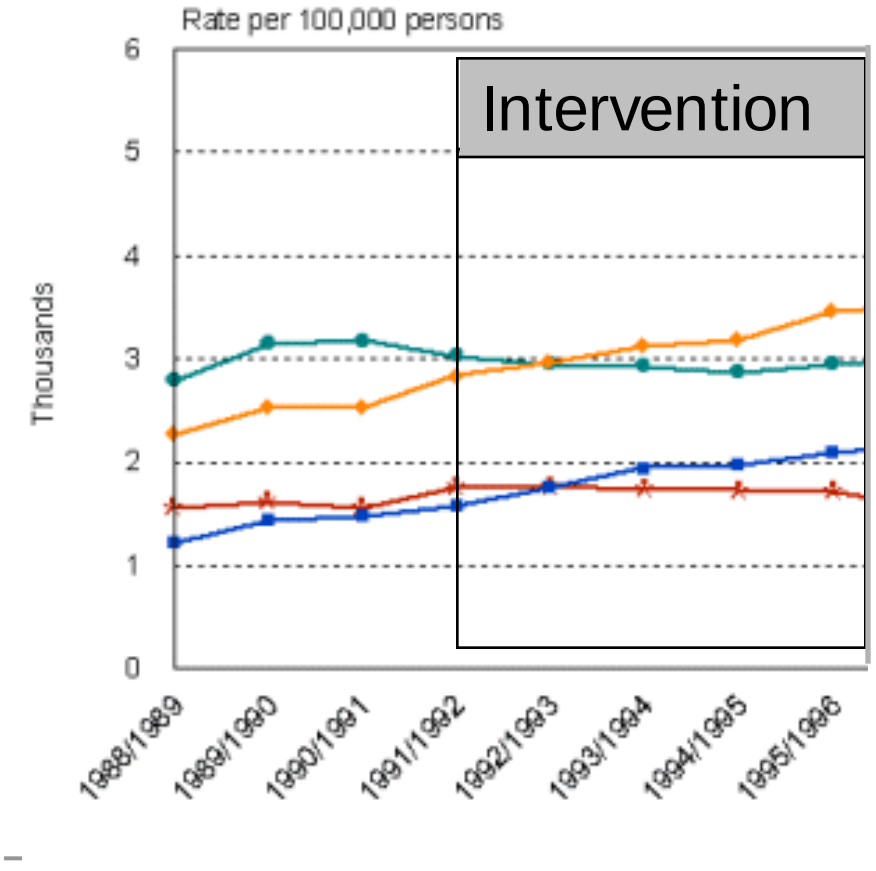
Falls Related Hospital Admissions age > 65 years for North Coast Area Health Service 1988-2005



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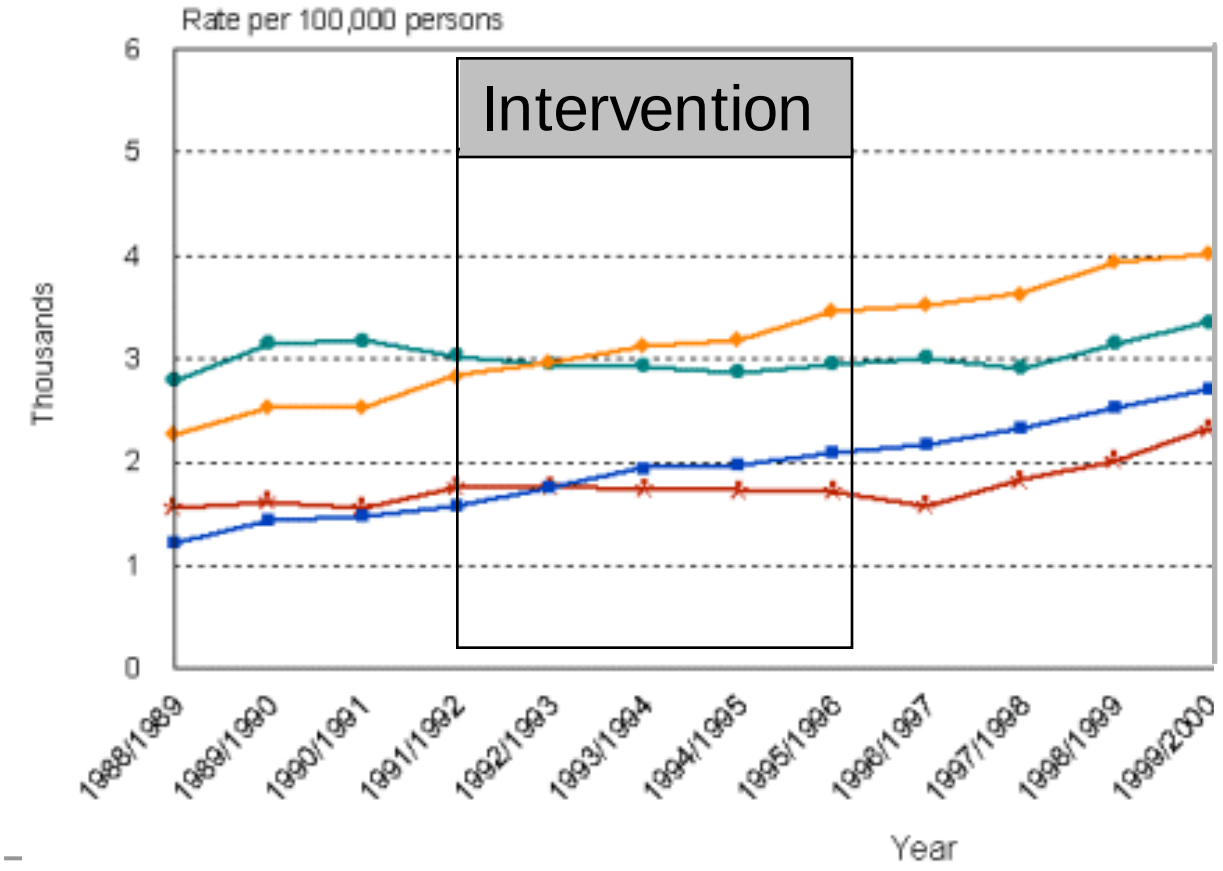

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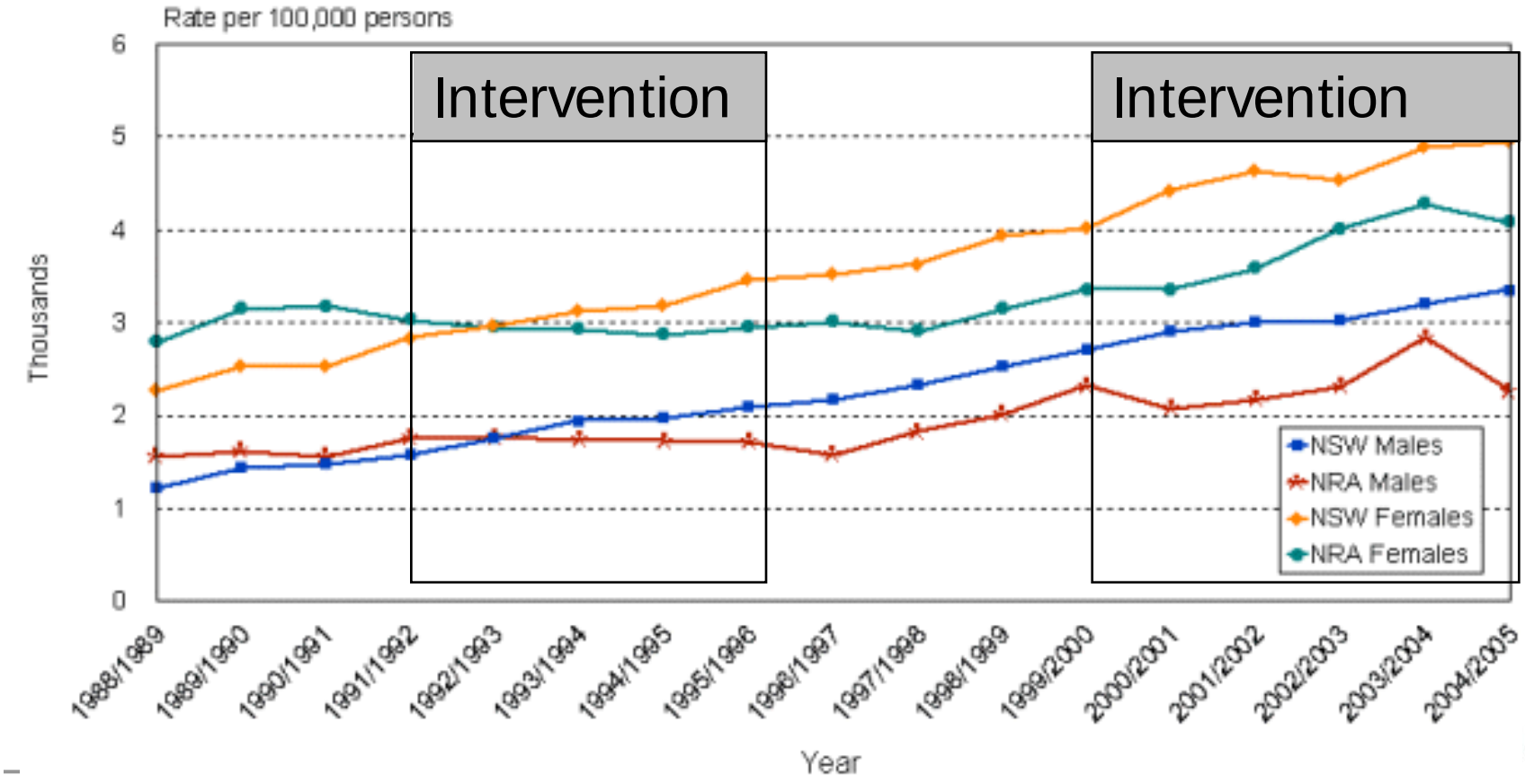

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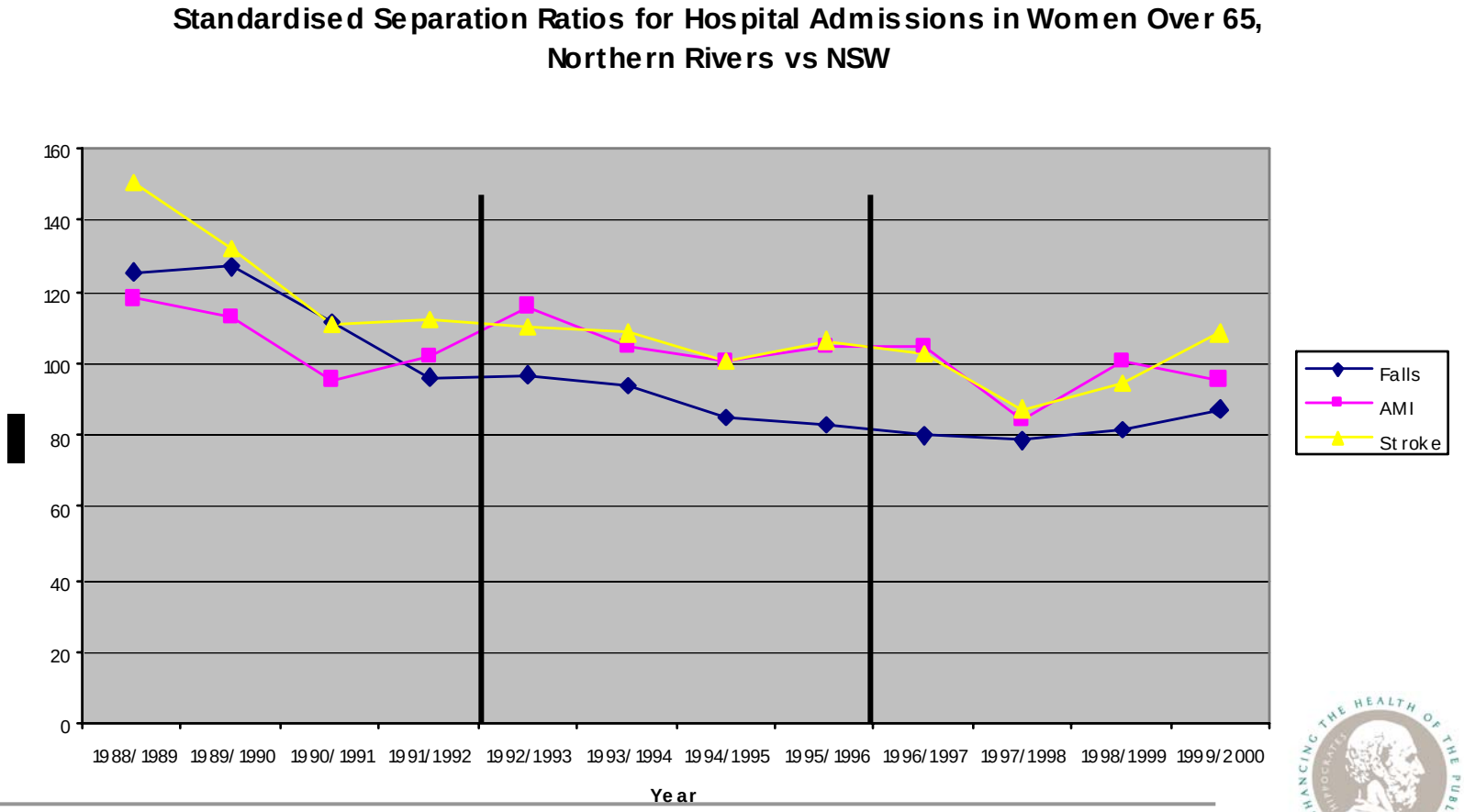
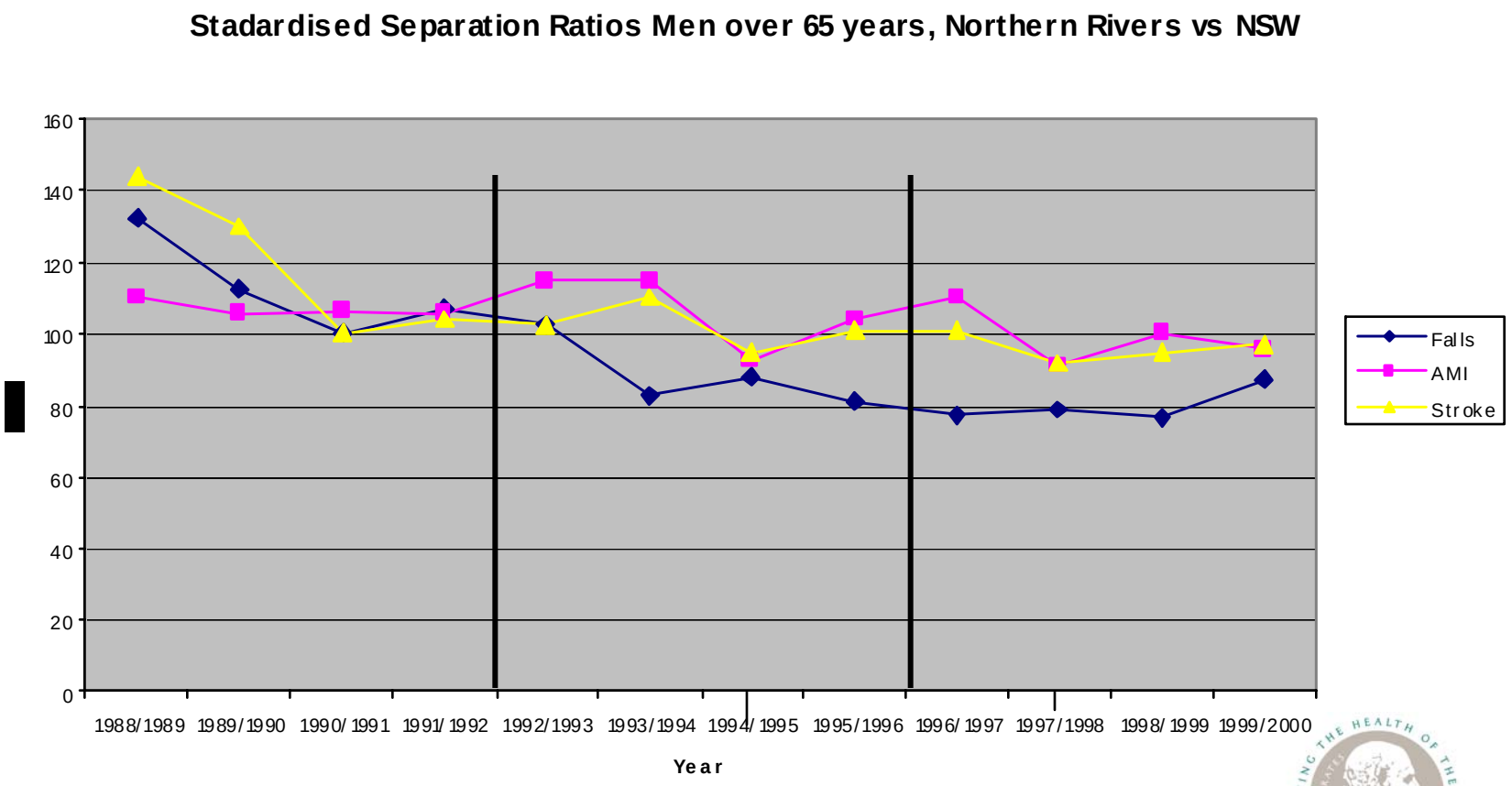
Standardised Separation Ratios for Hospital Admissions in Women Over 65, Northern Rivers vs NSW



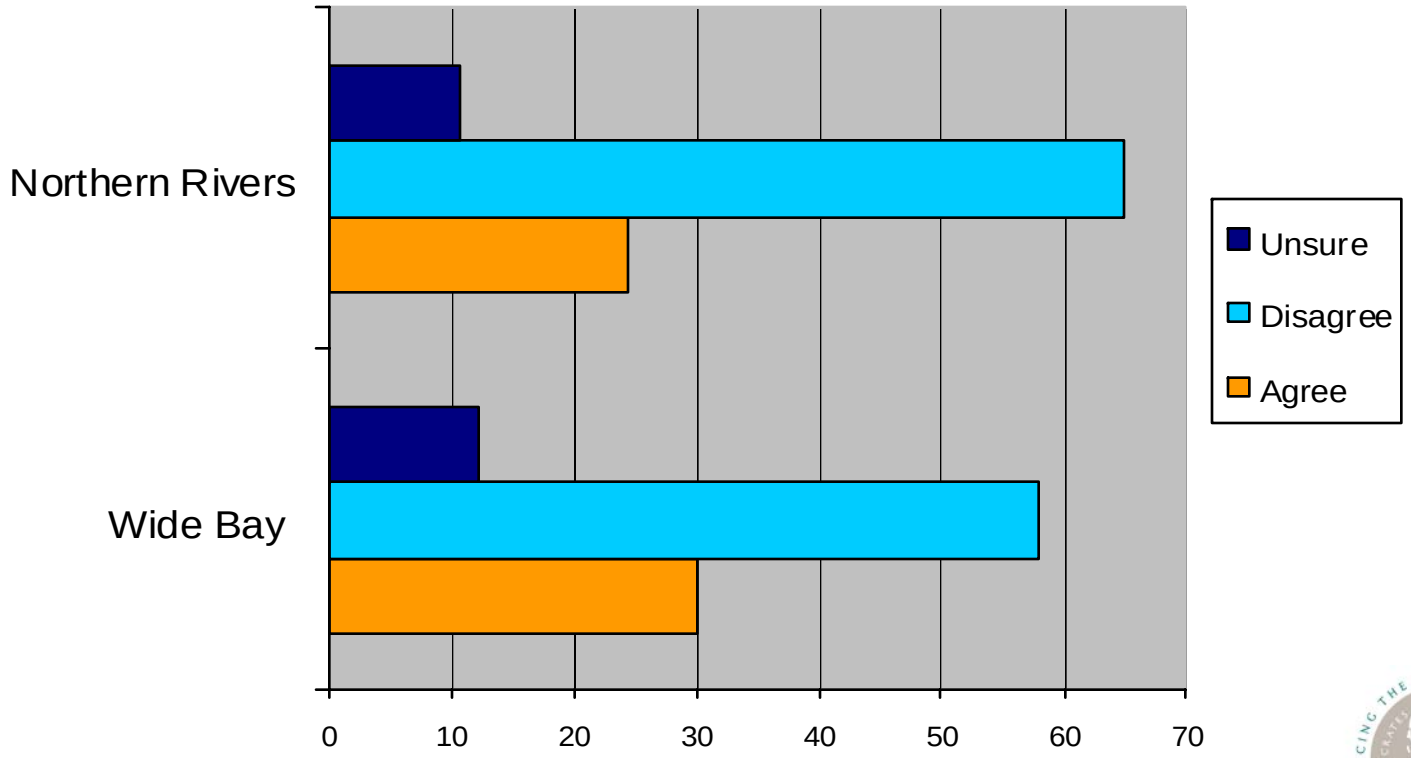
Standardised Separation Ratios Men over 65 years, Northern Rivers vs NSW



CATI 2002

- 1600 sampled in each region
  - Northern Rivers
  - Wide Bay
- Target group: adults aged 60+ yrs
- Stratified by sex
- Assessed:
  - self-reported falls and related injuries
  - falls prevention awareness and behaviours
  - interactions with health providers

"Older people fall and there is nothing that can be done about it."



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Media Awareness

Northern Rivers *more likely* than Wide Bay to report hearing/seeing about:

- Falls 47.7% v 32.4%
- Home modification 51.0% v 44.5%
- Medication checks 50.3% v 43.9%

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Physical Activity and other Behaviours

Northern Rivers *more likely* than

Wide Bay to:

- Participate in *moderate* physical activity (87.4% v 83.8%)
- Wear non-slip shoes regularly (78.8% v 75.3%)

Summary of Long Term Followup

- Continued significant reduction in hospital admission rates
- Evidence for continuing awareness and altered practice among clinicians
- Evidence for sustained increase in community awareness
- Evidence for sustained change in target group behaviour
- No evidence for reduction in self reported falls

Economic Analysis

Direct Costs of SOYF ($781,829)

	1992/93	1993/94	1994/95	1995/96
SOYF Costs	$166,877	$91,729	$117,722	$130,000
Public Health Unit Program costs	$373,643	na	$1,056,313	$322,555
SOYF as a % Health Unit program Costs	0.32	na	0.18	0.26
Total Overheads	$145,544	na	$413,666	$215,000
SOYF Overheads	$46,284	$ 55,327	$ 72,545	$54,891
SOYF Program and Overhead Costs	$213,161	$147,056	$190,267	$184,891

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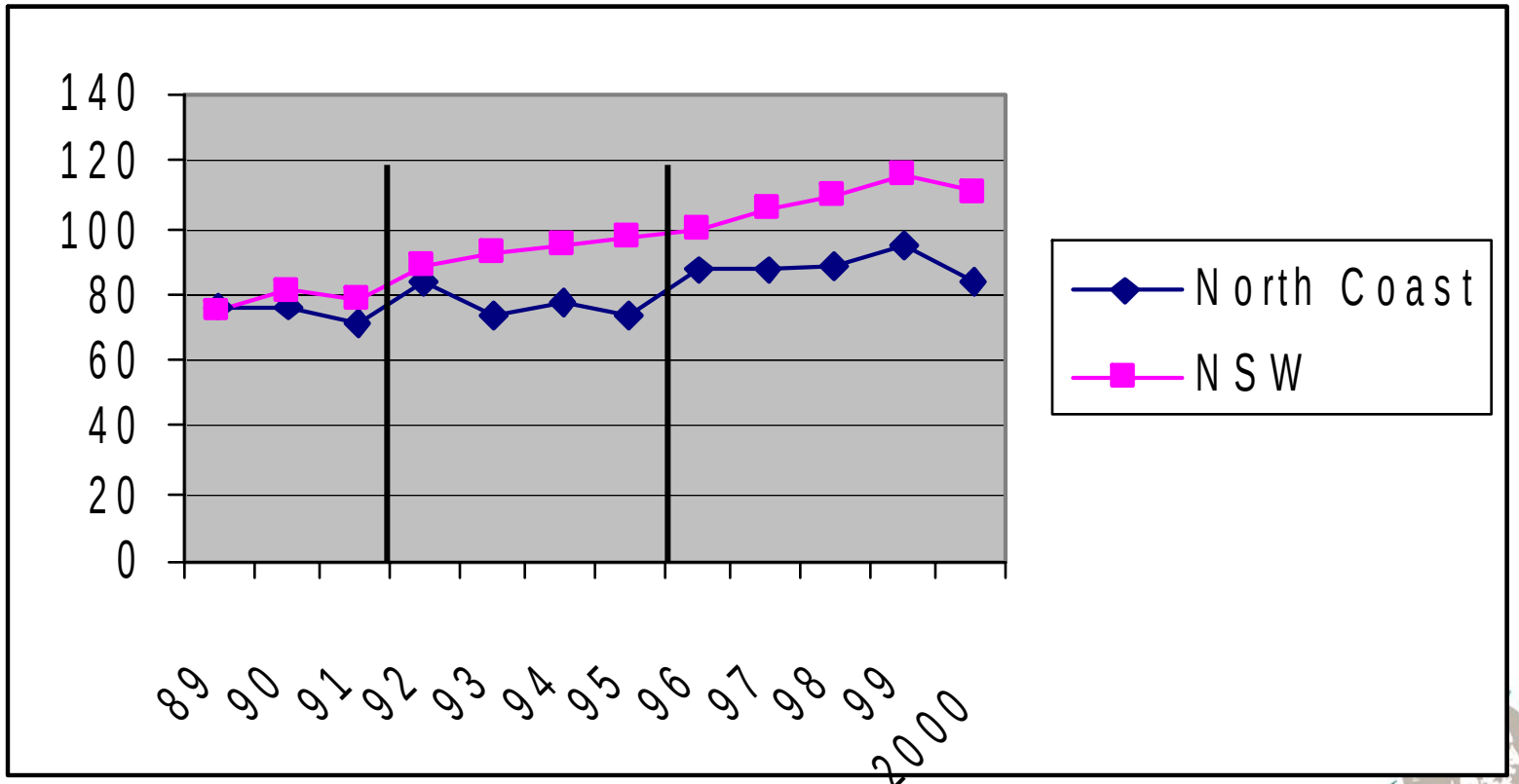
Benefits of SOYF

- Model One
  - cf control region in Qld
  - Methodologically rigorous
  - Demographic influence unlikely
  - No measure of severity
- Model Two
  - cf NSW
  - DRG based – takes account of severity
  - Cannot account for demographic shift

Model One - Reduction in falls and inpatient savings 91/92 to 95/96 compared with Sunshine Coast

Year (gender)	Actual Separations Intervention Community	Standardised Separation Ratio	Adjusted Separation Ratio	Falls Avoided	Mean acuity per separation both genders	Annual DRG Cost Weighted Index	Total Inpatient Hospital Costs Averted (both genders)
1989-90 (m)		0.92					
1989-90 (f)		0.84					
1990-91(m)		0.96					
1990-91 (f)		0.96					
1991-92 (m)	365	1.07	1.13	47	1.48	$2,235	$420,090
1991-92 (f)	889	0.99	1.09	80			
1992-93 (m)	426	0.90	0.96	-17	1.50	$2.390	$211,515
1992-93 (f)	955	0.98	1.08	76			
1993-94 (m)	445	1.04	1.10	44.5	1.89	$2,817	$1,126,053
1993-94 (f)	982	1.07	1.17	167			
1994-95 (m)	454	1.27	1.33	150	1.94	$2,429	$2,407,965
1994-95 (f)	985	1.24	1.34	361			
1995-96 (m)	513	1.11	1.17	87	1.92	$2,300	$1,731,072
1995-96 (f)	1130	1.17	1.27	305			
Total							$5,896,695
Total in 1996 $A							$6,483,078

Model Two - Standardised Cost Ratios Persons >65 1989-2000:Expected Separations on 1996 NSW Rates



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Model Two – falls related hospitalisations compared to NSW using a DRG derived cost index

Year	Actual NSW DRG	Expected NSW DRG	SCR NSW	Actual Intervention DRG	Expected Intervention DRG	SCR Inter-vention	DRG Saving	Saving less underlying trend	Annual DRG Cost Weighted index	Total Inpatient Hospital Costs Averted
1989	25466	33745	75.46	2255	2960	76.16	-20			
1990	27981	34584	80.91	2370	3116	76.06	151			
1991	28088	35929	78.18	2380	3367	70.69	252			
1992	33064	37171	88.95	2861	3457	82.73	215			
1993	35426	38482	92.06	2696	3644	73.97	659	515	$2,390	$1,230,850
1994	37682	39781	94.72	2991	3843	77.85	648	504	$2,817	$1,419,768
1995	39694	41099	96.58	2990	4054	73.77	925	781	$2,429	$1,897,049
1996	42554	42559	99.99	3730	4278	87.18	548	404	$2,300	$ 929,200
										$5,476,867
Total in 1996 $A										$6,184,547

Calculated Net Present Value and benefit-to-cost ratios for each tier of the health system

	NPV for the State Government*	NPV for the Commonwealth Govt.*	NPV for the Australian Community**
Method 1	$ 5,701,249	$ 9,725,591	$ 15,270,774
Benefit-cost ratio	(8.3 : 1)	(13.4 : 1)	(20 : 1)
Method 2	$ 5,402,718	$ 9,241,748	$ 14,530,494
Benefit-cost ratio	(7.9 : 1)	(12.8 : 1)	(19 : 1)
Average	$ 5,551,988	$ 9,483,676	$ 14,900,644
Benefit-cost ratio	(8.1 : 1)	(13.1 : 1)	(19.5 : 1)

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Conclusion

- Falls are a significant health and resource issue
- Falls in older people can be reduced through properly designed community based interventions
- Community based interventions can have a lasting impact
- Preventing falls is more cost effective than treating them
- Falls prevention programs can be expected to show a net positive return within a short period

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